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PATENT ABSTRACTS OF JAPAN

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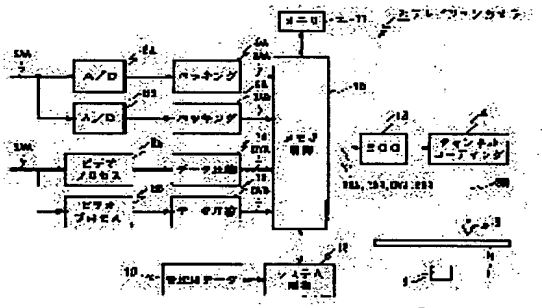
(54) OPTICAL DISK DEVICE

(57)Abstract:
PROBLEM TO BE SOLVED: To simplify management and handling of material by generating encoding data of two systems in different in the amount of data and recording them when an encoding processing is performed with the first video signal and the first video signal is recorded in the first optical disk.
SOLUTION: A video signal SVA is recorded by encoding data DVA and DVB different in resolution and an audio signal SAA is recorded by audio data DAA and DAB different in sound quality in an optical disk 1 respectively. In this way, it is possible to uniformly manage each material of the encoding data DVA and DVB and the audio data DAA and DAB. Furthermore, management data 16 are generated by a system control circuit 15 when the encoding data DVA and DVB and the audio data DAA and DAB are finished recording in the optical disk 1 and are recorded in a system data area of the optical disk 1. Thus, with regard to plural materials recorded in the optical disk 1, since the management data 16 such as a history can be recorded in the same optical disk 1, simplification of management becomes possible.



LEGAL STATUS

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CLAIMS

[Claim(s)]
[Claim 1] The optical disk unit characterized by having the 1st data-processing means which carries out data compression processing of the predetermined video signal, and generates the 1st coded data, the 2nd data-processing means which carries out data compression processing of the aforementioned video signal, and generates the 2nd coded data so that the amount of transaction datas may become small as compared with the 1st coded data of the above, and a record means to record the above 1st and the 2nd coded data on an optical disk.
[Claim 2] The optical disk unit according to claim 1 characterized by recording the above 1st and the administrative data of the 2nd coded data on the predetermined field of the aforementioned optical disk.
[Claim 3] The optical disk unit according to claim 1 characterized by forming in the predetermined field of the aforementioned optical disk the record section of the edit list into which the aforementioned video signal is edited.
[Claim 4] The aforementioned record means is an optical disk unit according to claim 1 characterized by assigning and recording the 1st and 2nd audio signals corresponding to the above 1st and the 2nd coded data, the above 1st, and the 2nd coded data on the small field which comes to divide an information recording surface in the shape of a concentric circle, respectively.

[Translation done.]

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[The technical field to which invention belongs] Concerning an optical disk unit, this invention is a coverage site and can be applied to the field edit system which processes the video signal acquired from a television camera. In case this invention carries out coding processing of the video signal of 1 and records it on the optical disk of 1, it enables it to simplify management of a material, and handling by generating and recording two coded data from which the amount of data differs.
[0002]
[Description of the Prior Art] It is made as [create / an edit list (EDL:Edit Decision List) / in the editing task using the video tape recorder / conventionally / by the work tape created from the material tape].
[0003] That is, in a coverage site, a desired photographic subject is picturized, for example by the camera one apparatus video tape recorder, and the content of coverage which comes to be as a result of an image pck-up is recorded on a magnetic tape. In an editing task, this magnetic tape is dealt with as a material tape, this material tape is dubbed to a magnetic tape with a low resolution, and a work tape is created.
[0004] Furthermore, an edit list is created by offline editing using this work tape of low quality of image, and the online-editing work using the material tape is done with this edit list. It is made as [create / an edit list / these / by the simple system / by the conventional editing task].
[0005]
[Problem(s) to be Solved by the Invention] However, when creating and carrying out the editing task of the work tape in this way than a material tape, there is a problem to which management of a material and handling become complicated.
[0006] this invention was made in consideration of the above point, and tends to propose the optical disk unit which can simplify management of a material, and handling as compared with the former.
[0007]
[Means for Solving the Problem] In this invention, in order to solve this technical problem, by the 2nd data compression means, data compression processing of the previous video signal is carried out, the 2nd coded data is generated, and these [1st] and the 2nd coded data are recorded on an optical disk so that data compression processing of the predetermined video signal may be carried out, the 1st coded data may be generated and the amount of transaction datas may become small by the 1st data-processing means as compared with the 1st coded data.
[0008] If the 2nd coded data with the small amount of transaction datas is generated as compared with the 1st coded data and this 1st coded data and these [1st] and the 2nd coded data are recorded on an optical disk, the content of a material tape and the content of a work tape in the conventional video tape recorder are storable in the record medium of 1. The optical disk of 1 can be managed and handled by these, an edit list can be simply created by the 2nd coded data, and the 1st coded data can be edited with this edit list.
[0009]
[Embodiments of the Invention] Hereafter, the gestalt of operation of this invention is explained in full detail, referring to a drawing suitably.
[0010] (1) The block diagram 2 of the gestalt of operation of the gestalt (1-1) 1st of the 1st operation is a plan showing the optical disk applied to the edit system concerning the gestalt of the 1st operation. This optical disk 1 is contained and held at predetermined cartridge 1A, and is made as [reduce / penetration of dust etc. / by this]. Furthermore, if devices, such as a television camera and an optical disk unit, are loaded, an optical disk 1 is formed so that the shutter arranged at this cartridge 1A may slide and an information recording surface may be exposed, and is made as [access / by this / with a television camera, an optical disk unit, etc. / it].
[0011] The pulley groove which bears the guide slot on the laser beam moves in a zigzag direction, and is formed, this optical disk 1 becomes with the so-called phase-change type optical disk in which rewriting which formed the information recording surface in both sides is possible, it carries out a rotation drive so that the meandering period of this pulley groove in a laser-beam irradiation position may turn into a fixed period, and it is made as [carry out / the rotation drive of the optical disk 1 / according to the conditions of a ZCLV (Zone Constant Linear Verocity) constant linear velocity].
[0012] As for this optical disk 1, the system data field ARS is formed in an inner circumference side. The system data field ARS is divided into three fields ARSA, ARSB, and ARSC in the shape of a concentric circle, and the administrative data recorded on the field ARSA of the most inner circumference at the time of manufacture of this optical disk are recorded here. This administrative data is constituted from the optimal quantity of light at the time of data logging to an optical disk 1, and an optical disk 1 by a common serial number, the peculiar discernment data assigned to each optical disk 1, respectively here.
[0013] The administrative data of the video signal recorded on the optical disk 1 and an audio signal are recorded on the field ARSB by the side of the continuing periphery. Administrative data are constituted by data required for access of each video signal and an audio signal, data required for decode, the data of the conditions at the time of an image pck-up, the discernment data of being the file which can be edited set up by the cameraman here.
[0014] Among these, data required for access are constituted by the time code at the address information [which becomes in the record starting position of each file by the video signal and the audio signal and a record end position], recording start, and record end time etc. Moreover, data required for decode are constituted by the format of a video

signal and an audio signal, the sampling rate of an audio signal, compression / incompressible discernment data, etc. The data of the conditions at the time of an image pck-up are constituted by the picturized time, a place, a cameraman's name, and the setting data of a television camera, and the white balance by which setting data were set as the television camera, gain, level setting of an audio signal, the data of drawing, etc. are recorded. Thereby with the optical disk 1, it is made as [check / the history of each file recorded on the optical disk 1 etc.] with the administrative data recorded on this field ARSB.

[0015] As for the field ARSC by the side of the continuing periphery, the data for edit are recorded. The edit list into which each file which the data for this edit were recorded by file format here, and was recorded on this optical disk 1 is edited is recorded. In addition, the data of the editing point set up about each file are recorded by a time code and the address in order of reproduction with the gestalten (for example, cut edit, cross fade, etc.) of changes, and this edit list is formed. Thereby, an optical disk 1 chooses the edit list of desired, and is made as [reproduce / one by one / the content of coverage recorded according to this selected edit list].

[0016] On the other hand, the field ARU by the side of a periphery is assigned to a user area, and a digital video signal and a digital audio signal are recorded. A user area ARU is divided into the small fields ARU1 and ARU2 and .... in the shape of a concentric circle here. Furthermore, each smallness fields ARU1 and ARU2 and .... are divided into five fields in the shape of a concentric circle, the field of the outermost periphery of these five fields is assigned to the record section of the digital video signal V1, and each field by the side of inner circumference is assigned to the record section of the digital audio signals A1-A4 of four channels, respectively. Thereby with this optical disk 1, it is made as [record / corresponding to a digital video signal / the voice of the description by the voice of the description by the photographic subject at the time of picturizing a photographic subject, for example and surrounding voice (it is called environmental sound below) and announcer and various languages, background music, etc.].

[0017] With the gestalt of this operation, each smallness fields ARU1 and ARU2 and .... which were assigned by doing in this way are cyclically made as [assign / the system of the 1st and 2nd video signals] one by one from the periphery side.

[0018] Drawing 1 is the block diagram showing the recording system of the television camera applied to this edit system. This television camera 2 records digital video signal SVA and audio signal SAA which are outputted from a camera unit on an optical disk 1.

[0019] That is, in this television camera 2, movable [of the optical pickup 3] is carried out to radial [of an optical disk 1] according to the thread mechanism which is not illustrated, and it is made as [access / the field of a request of an optical disk 1 / by this]. Moreover, an optical pickup 3 irradiates a laser beam at an optical disk 1, and from the light-receiving result of the return light, focal control is carried out, and it generates and outputs tracking control and the regenerative signal from which it returns further and signal level changes according to the quantity of light of light.

[0020] Moreover, an optical pickup 3 outputs the monitor signal of the laser-beam quantity of light with which signal level changes according to the quantity of light of a laser beam, and starts the quantity of light of a laser beam from the quantity of light at the time of reproduction intermittently to the optimal quantity of light of pit formation according to the driving signal SR outputted from the channel coding circuit 4 by control of the servo circuit on the basis of the signal level of this monitor signal. Thereby, a television camera 2 starts the quantity of light of a laser beam intermittently, and carries out heat record of the data of the request to an optical disk 1.

[0021] In the case of this data logging, an optical pickup 3 seeks each field of a user area ARU cyclically one by one, and displaces it from a periphery side to an inner circumference side one by one in each field, and carries out heat record of a digital video signal and the digital audio signal at an optical disk 1. Thereby, by the television camera 2, when the rotation drive of the optical disk 1 is carried out according to the conditions of a constant angular velocity, it is made from the periphery side field which can reproduce the data recorded by the high transfer rate as [record / a digital video signal and a digital audio signal / one by one / on an optical disk 1].

[0022] By control of the servo circuit which is not illustrated, at the time of record, a spindle motor 5 carries out the rotation drive of the optical disk 1 according to the conditions of ZCLV, and carries out the rotation drive of the optical disk 1 according to the conditions of the constant angular velocity of high rotational speed as compared with the time of record at the time of reproduction. It is made as [make / to seek using the latency time which is made as / reproduce / the video signal and audio signal which processed intermittently the regenerative signal obtained by the high transfer rate in a television camera 2 at the time of reproduction, and continued], and processes intermittently, and is generated / by this / an optical pickup 3].

[0023] Video process circuit 6A receives digital video signal SVA, and amends the signal level of this digital video signal SVA, and removes and outputs unnecessary data, such as a blanking period.

[0024] The data compression of the data compression circuit 7A is carried out one by one by the format of the convention of the digital video signal outputted from this video process circuit 6A to MPEG (Moving Picture Experts Group), and it outputs coded data DVA. At this time, data compression circuit 7A makes a unit GOP (Group Of Pictures) which becomes for example, per data compression, and it carries out the data compression of the digital video signal so that coded data DVA may become the fixed amount of data.

[0025] Video process circuit 6B amends the signal level of digital video signal SVA, and removes and outputs unnecessary data, such as a blanking period. At this time, video process circuit 6B oppresses the high region of digital video signal SVA by the low pass filter, and, thereby, reduces and outputs the resolution of digital video signal SVA.

[0026] The data compression of the data compression circuit 7B is carried out one by one by the format of the convention of the digital video signal outputted from this video process circuit 6B to MPEG, and it outputs coded data DVB. At this time, data compression circuit 7B increases a data compression rate as compared with data compression circuit 7A by setup of a quantization table, and to the amount of data of coded data DVA, it carries out the data compression of the digital video signal so that about 1/of the amounts of transaction datas may be set to 10.

Analog-to-digital-conversion circuit (A/D) 8A carries out analog-to-digital-conversion processing of the audio signal SAA, and outputs audio data. In addition, this audio signal SAA is acquired with the microphone arranged at this television camera 2, and analog-to-digital-conversion circuit 8A carries out analog-to-digital-conversion processing by setup of an operator by sampling rates, such as 44 [48 [kHz]/16 [Bit] and] [kHz]/8 [Bit].

[0027] Packing circuit 9A blocks and outputs the audio data outputted from analog-to-digital-conversion circuit 8A by the predetermined data unit. At this time, by an operator's selection, packing circuit 9A carries out the data compression of the audio data, and outputs them.

[0028] Analog-to-digital-conversion circuit 8B carries out analog-to-digital-conversion processing of the audio signal

SAA by the sampling rate of a low sampling rate as compared with analog-to-digital-conversion circuit 8A, and, thereby, outputs the audio data with which tone quality comes to deteriorate as compared with analog-to-digital-conversion circuit 8A.
[0029] Packing circuit 9B blocks and outputs the audio data outputted from analog-to-digital-conversion circuit 8B by the predetermined data unit. At this time, corresponding to the processing in packing circuit 9A, packing circuit 9B carries out the data compression of the audio data, and outputs them.
[0030] Memory 11 becomes by mass buffer memory, incorporates the coded data DVA and DVB outputted by address control of the memory control circuit 10 from the data compression circuits 7A and 7B, and the audio data DAA and DAB outputted from the packing circuits 9A and 9B one by one, and holds them temporarily. Furthermore, memory 11 divides coded data DVA and DVB and the audio data DAA and DAB by the predetermined time interval, blocks them one by one, per these blocks, carries out time multiplexing of coded data DVA and DVB and the audio data DAA and DAB, and outputs them. Two or more these time intervals are set as the period corresponding to GOP of coded data DVA and DVB here. At this time, memory 11 sandwiches sufficient time interval for seeking of an optical pickup 3 in between, and carries out time multiplexing of these coded data DVA and DVB and the corresponding audio data DAA and DAB one by one.
[0031] After the ECC circuit 13 adds an error correcting code, a time code, etc. to this data by which time multiplexing was carried out, it carries out interleave processing and outputs. At this time, about coded data DVA and DVB, the ECC circuit 13 sets the amount of data corresponding to this 1GOP for 1GOP as the ECC data block which becomes by the error correction batch, and adds [data / audio / DAA and DAB] the error correcting code of product-code form to each ECC data block, respectively.
[0032] By the modulation technique suitable for record of an optical disk 1, after the channel coding circuit 4 modulates the output data of this ECC circuit 13, it is changed into serial data and generates a driving signal SR. By the television camera 2, a predetermined time interval is inserted in between by these. The driving signal SR by coded data DVA, the driving signal SR by coded data DVB Do so that the driving signal SR by the audio data DAA and the driving signal SR by the audio data DAB are cyclically outputted one by one in predetermined sequence. By making an optical pickup 3 seek corresponding to the output of this driving signal SR, and accessing cyclically the field where an optical disk 1 corresponds one by one It is made as [record / cyclically / the coded data DVA and DVB from which the resolution by video signal SVA differs, and the audio data DAA and DAB with which the tone quality by audio signal SAA differs / one by one / on an optical disk 1]. Thereby, by this television camera 2, DAB is recorded on the record medium of the coded data DVA and DVB from which the resolution by video signal SVA differs, and the audio data DAA and 1 with which the tone quality by audio signal SAA differs, and it is made as [simplify / management of each material by these coded data DVA and DVB and the audio data DAA and DAB / as compared with the former].
[0033] If it is constituted by the microcomputer which controls operation of this television camera 2 and is loaded with an optical disk 1, or if a power supply is started, the system control circuit 15 will control a servo circuit, will make an optical pickup 3 seek in the inner circumference side of an optical disk 1, and will acquire the administrative data 16 recorded on the system data field ARS of an optical disk 1.
[0034] The system control circuit 15 records video signal SVA and audio signal SAA on an optical disk 1 by the system from which the resolution mentioned above and tone quality differ following operation of a cameraman. At this time, the system control circuit 15 detects the free area of an optical disk 1 etc. with the acquired administrative data 16, and controls access of an optical pickup 3 based on this detection result.
[0035] Moreover, if record of the video signal to an optical disk 1 and an audio signal is completed, at the time of the address which shows the record starting position of this video signal and an audio signal, and a record end position, and a recording start, the system control circuit 15 will generate administrative data by the time code at the time of a record end etc., and will add them to the administrative data 16 which acquired this administrative data from the optical disk 1. At this time, the system control circuit 15 adds the data of the conditions at the time of the image pck-up inputted by the format of the sampling rate of the data of the conditions at the time of an image pck-up, and the audio data DAA and DAB, compression / incompressible discernment data, and digital video signal SVA, and operation of an operator etc., and generates administrative data.
[0036] Furthermore, the system control circuit 15 makes the system data field ARS seek an optical pickup 3 to predetermined timing, and updates the system data field ARS so that the administrative data 16 which carried out in this way and were updated may be in agreement with the administrative data of the system data field ARS of an optical disk 1.
[0037] It is made as [record / data required for management of these materials / on the optical disk 1 which recorded two or more materials by the television camera 2 by these], and is made as / simplify / handling of these materials].
[0038] In addition, in addition to the recording system shown in this drawing 1 , a television camera 2 has a reversion system and is made as [check / the content recorded on the optical disk 1 / for example, by the view fur].
[0039] Drawing 3 is the block diagram showing the reversion system of an optical disk unit. This optical disk unit 20 is a viewer who edits the video signal and audio signal which did in this way and were recorded on the optical disk 1, creates an edit list by operation of an operator, and outputs an edit result according to this created edit list following operation of an operator. Moreover, it replaces with this, the coded data based on a low resolution is transmitted to a broadcasting station, and the edit list created by this coded data at the broadcasting station is acquired. Furthermore according to this acquired edit list, an edit result is sent out. moreover, the edit list which outputted the video data based on a low resolution to the personal computer, and was created with this personal computer — or the edit list created by control of a personal computer is recorded on an optical disk 1, and an edit result is outputted
[0040] In this optical disk unit 20, a spindle motor 21 carries out the rotation drive of the optical disk 1 according to the conditions of a constant angular velocity by control of the servo circuit which is not illustrated. At this time, a spindle motor 21 carries out the rotation drive of the optical disk 1 with a rotational speed more nearly high-speed than the full speed at the time of record.
[0041] By control of the system control circuit 23, movable [of the optical pickup 22] is carried out to radial [of an optical disk 1], and, thereby, it accesses the field of a request of an optical disk 1. Moreover, an optical pickup 22 irradiates a laser beam at an optical disk 1, and from the light-receiving result of the return light, focal control is carried out, and it generates and outputs tracking control and the regenerative signal RF from which it returns further and signal level changes according to the quantity of light of light. At the time of reproduction, an optical pickup 22 outputs the regenerative signal RF of a high transfer rate corresponding to the rotational speed of this optical disk 1,

when the rotation drive of the optical disk 1 is carried out by rotational speed more nearly high-speed than the full speed at the time of record.
[0042] Furthermore, when reproducing the video signal by high resolution when reproducing the video signal according an optical pickup 22] to a low resolution the time of reproduction so that the regenerative signal RF by coded data DVB and the regenerative signal RF by the audio data DAB may continue by turns one by one and, the regenerative signal RF by coded data DVA and the regenerative signal RF by the audio data DAA are predetermined time intervals so that it may continue by turns one by one, and each smallness field of a user area ARU is sought cyclically one by one.
[0043] In the regenerative-signal processing circuit which is not illustrated, from this regenerative signal RF, this reversion system reproduces a clock, carries out analog-to-digital-conversion processing of the regenerative signal RF on the basis of this clock, and generates a digital regenerative signal. Furthermore, a reversion system processes this digital regenerative signal with the application of the technique of PRML (Partial Response Maximum Likelihood), and generates the reproduction data corresponding to the driving signal SR (drawing 1) outputted from the channel coding circuit 4.
[0044] The channel decoding circuit 24 decodes and outputs the output data of the ECC circuit 13 from this reproduction data. The ECC decoding circuit 25 carries out error correction processing of the output data of the channel decoding circuit 24, and carries out day interleave processing, and outputs. With the gestalt of this operation, when an optical pickup 22 seeks one by one by the predetermined time interval, the ECC decoding circuit 25 will carry out error correction processing of the ECC data block by coded data DVA or DVB, and the ECC data block by the audio data DAA and DAB by turns per predetermined block corresponding to access of this optical pickup 22, and will output coded data DVA or DVB, and the audio data DAA and DAB. Moreover, it will output by the high transfer rate corresponding to the rotational speed of an optical disk 1 at this time.
[0045] Memory 26 becomes by mass buffer memory, incorporates the coded data DVA outputted by address control of the memory control circuit 27 from the ECC decoding circuit 25 or DVB, and the audio data DAA and DAB, and holds them temporarily. Furthermore, memory 26 carries out time-axis extension of the incorporated coded data DVA or DVB, and the audio data DAA and DAB, and it outputs them to the data extension circuit 28 and the DEPAKKINGU circuit 29 so that it may continue by time series, respectively. Moreover, by control of the system control circuit 23, coded data DVA or DVB, and the audio data DAA and DAB are repeated by turns per predetermined block, and it outputs to a modem 30.
[0046] The data extension circuit 28 receives the coded data DVA or DVB which continues by time series through the memory control circuit 27, by setup of the system control circuit 23, carries out data extension and, thereby, decodes the video data DVA1 with high resolution, or the low video data DVB 1 of resolution. Furthermore, the data extension circuit 28 is outputted to the personal computer connected to this optical disk unit 20 by an operator's selection through the predetermined interface circuitry about coded data DVB1 by the low resolution.
[0047] Thereby with the optical disk unit 20, it is made as [create / an edit list / it is made as / carry out / the monitor of the desired video signal] also with the personal computer connected outside by communication with this personal computer and the system control circuit 23, and an edit list is created with a personal computer, and / in the system control circuit 23 / by control of a personal computer].
[0048] By setup of the system control circuit 23, the video process circuit 31 adds data, such as a blanking, to the video data DVA1 or DVB1 outputted from this data extension circuit 28, and reproduces digital video signal SVA at the time of record, or SVB. Furthermore, this digital video signal SVA or SVB is displayed on the monitor of built-in in an optical disk unit 20, and the video process circuit 31 outputs it to an external instrument.
[0049] The DEPAKKINGU circuit 29 receives the audio data DAA and DAB which continue by time series through the memory control circuit 27, by setup of the system control circuit 23, processes these audio data DAA and DAB by data processing contrary to the packing circuits 9A and 9B, and, thereby, decodes the audio data DAA 1 of the quality of loud sound, or the audio data DAB 1 of the quality of low-pitched sound. The DEPAKKINGU circuit 29 is outputted to the personal computer connected to this optical disk unit 20 by an operator's selection with the video data DVB 1 of a low resolution through the predetermined interface circuitry about the audio data DAB 1 of the quality of low-pitched sound.
[0050] By control of the system control circuit 23, by the sampling rate at the time of record, the digital-to-analog-conversion circuit (D/A) 32 carries out digital-to-analog-conversion processing of the output data of the DEPAKKINGU circuit 29, reproduces audio signal SAA at the time of record, or SAB by this, and outputs it to a loudspeaker.
[0051] Through the memory control circuit 27, a modem 30 receives coded data DVB of a low resolution, and the audio data DAB of the quality of low-pitched sound, and sends out these data DVB and DAB to a broadcasting station etc. through the telephone line. A modem 30 combines the administrative data corresponding to these data DVB and DAB that the system control circuit 23 acquired in advance, transmits them to a broadcasting station etc., and enables it to create an edit list in advance at a transmission place by this at this time. Moreover, a modem 30 acquires the edit list which did in this way and was created with coded data DVB of a low resolution, and the audio data DAB of the quality of low-pitched sound through the telephone line, and notifies this edit list to the system control circuit 23.
[0052] If it is constituted by the microcomputer which controls operation of this optical disk unit 20 and is loaded with an optical disk 1, or if a power supply is started, the system control circuit 23 will control a servo circuit, will make an optical pickup 3 seek in the inner circumference side of an optical disk 1, and will acquire the administrative data 16 recorded on the system data field ARS of an optical disk 1.
[0053] The system control circuit 23 controls operation of this reversion system while making an optical pickup 22 seek on the basis of this acquired administrative data 16 following the control command from a personal computer following operation of an operator, and it reproduces the video signal and audio signal for which an operator asks by this. At this time, the system control circuit 23 makes an optical pickup 3 seek cyclically one by one, and sets up the conditions of the data extension circuit 28, the DEPAKKINGU circuit 29, the video process circuit 31, and the digital-to-analog-conversion circuit 32 based on administrative data so that the audio signal by the video signal by the low resolution or high resolution, the quality of low-pitched sound, or the quality of loud sound may be alternatively reproduced corresponding to an operator's selection.
[0054] The system control circuit 23 can be made to carry out a monitor with the monitor of built-in of the video signal and audio signal which were recorded on the optical disk 1, and a loudspeaker, and enables it to output the video data

DVB 1 based on a low resolution, and the audio data DAB 1 based on the quality of low-pitched sound to a personal computer by this.
[0055] Furthermore, in reproduction of this video signal and an audio signal, the system control circuit 23 receives a setup of the editing point by the operator indirectly by operation of a personal computer directly by operation of the handler arranged at this optical disk unit 20, and creates the edit list 33 with this editing point, and receives change of the edit list 33. Moreover, when an operator performs operation of a preview, while making an optical pickup 22 seek according to this edit list 33, operation of a reversion system is controlled, this plays an optical disk 1 according to the edit list 33, and an edit result is outputted. Furthermore, by operation of an operator, if the edit list 33 is decided, the system control circuit 23 will record this edit list 33 on the system data field ARS of an optical disk 1.
[0056] Moreover, the system control circuit 23 records the edit list 33 on an optical disk 1 while it acquires this edit list 33 by operation of an operator and performs processing of a preview similarly, when an edit list is created in a personal computer.
[0057] On the other hand, when creating an edit list until it transmits beforehand the contents recorded, for example on the optical disk 1 to a broadcasting station and brings an optical disk 1 back to a broadcasting station, the system control circuit 23 reproduces the video signal of a low resolution, and the audio signal of the corresponding quality of low-pitched sound one by one from an optical disk 1 by operation of an operator, and sends them out through a modem 30. The administrative data 16 are combined at this time, it sends out from a modem 30, and this provides a broadcasting station with the conditions of the same material as the edit material which this optical disk unit 20 comes to hold, and an editing task by the video signal of a low resolution, and the audio signal of the quality of low-pitched sound.
[0058] Moreover, the system control circuit 23 will acquire this edit list 33 through a modem 30, if an edit list is sent out from a broadcasting station etc. Furthermore according to this edit list 33, an optical disk 1 is played, and video signal SVA by high resolving obtained as a result and audio signal SAA by the quality of loud sound are sent out to the transmission equipment which becomes with an external instrument. Thereby, the system control circuit 23 sends out an edit result by the SNG circuit etc. according to the edit list created by the broadcasting station in advance.
[0059] (1-2) In the composition more than operation of the form of the 1st operation, in a television camera 2 (drawing 1), if loaded with an optical disk 1, an optical pickup 3 will seek in the inner circumference side of an optical disk 1, and the administrative data 16 recorded on the system data field ARS by the side of inner circumference will be acquired by the system control circuit 15. Thereby in the system control circuit 15, the recordable field of an optical disk 1 is detected.
[0060] In a television camera, video signal SVA picturized in the camera unit receives predetermined processing by the video process circuits 6A and 6B, and the video signal SVB which comes to decrease resolution to video signal SVA is generated. Data compression processing of these video signals SVA and SVB is carried out by the technique of MPEG by the continuing data compression circuits 7A and 7B, respectively, and the data compression of the video signal SVB is carried out by the high data compression rate at this time. The coded data DVA based on the high resolution corresponding to the video signal recorded on the conventional material tape by this and coded data DVB by the low resolution corresponding to the video signal recorded on the conventional work tape are accumulated one by one at memory 11.
[0061] Moreover, in the analog-to-digital-conversion circuits 8A and 8B, audio signal SAA corresponding to video signal SVA is changed into the audio data based on a high sampling rate, and the audio data based on a low sampling rate, and is changed into the audio data DAB in which the data compression was carried out to the audio data DAA in which the data compression was carried out by the usual data compression rate, respectively by the high data compression rate in the packing circuits 9A and 9B where these audio data continue. The audio data DAA based on the quality of loud sound corresponding to the audio signal recorded on the conventional material tape by this and the audio data DAB based on the quality of low-pitched sound corresponding to the audio signal recorded on the conventional work tape are accumulated one by one at memory 11.
[0062] Thus, time base compaction of the coded data DVA and DVB accumulated temporarily at memory 11 and the audio data DAA and DAB is blocked and carried out for every predetermined time interval which made GOP the unit, these coded data DVA and DVB of these by which time base compaction was carried out, and the audio data DAA and DAB sandwich in between the time interval which seeking of an optical pickup 3 takes, and time multiplexing of them is carried out one by one, and they are outputted to the ECC circuit 13. Furthermore, in the ECC circuit 13, after an error correcting code is added per ECC data block, it is changed into the driving signal SR of an optical pickup 3 by the channel coding circuit 4. The quantity of light of the laser beam furthermore injected by this driving signal SR from an optical pickup 3 is intermittently started from the quantity of light at the time of reproduction, and, thereby, 1st video signal SVA, the 2nd video signal SVB, audio signal SAA corresponding to 1st video signal SVA, and the audio signal SAB corresponding to the 2nd video signal SVB are cyclically recorded on an optical disk 1 one by one in predetermined sequence.
[0063] The small field ARU1 assigned to the system of (drawing 2) and 1st video signal SVA from the periphery side of an optical disk 1 at this time, The field assigned to the video signal, the field assigned to the audio signal of one channel of this small field ARU1, The small field ARU2 assigned to the system of the 2nd video signal SVB, When an optical pickup 3 seeks cyclically the field assigned to the video signal and the field assigned to the audio signal of one channel of this small field ARU2 one by one corresponding to the sequence in a driving signal SR Moreover, when the rotation drive of the optical disk 1 is carried out by ZCLV corresponding to seeking of this optical pickup 3 Coded data DVA by these high resolutions, coded data DVB by the low resolution, audio signal SAA by the quality of loud sound, and the audio signal SAB by the quality of low-pitched sound are cyclically recorded on the field which corresponds, respectively one by one.
[0064] By the coded data DVA and DVB from which resolution differs [video signal SVA of 1] with an optical disk unit 20 by these With moreover, the audio data DAA and DAB based on the tone quality from which audio signal SAA of 1 differs It can be recorded on the optical disk 1 which becomes with the record medium of 1, the material by these coded data DVA and DVB and the material by the audio data DAA and DAB can be managed now unitary by this, and management of a material is simplified as compared with the case where it is based on the conventional magnetic tape.
[0065] If it does still in this way and record of the coded data DVA and DVB to an optical disk 1 and the audio data DAA and DAB is completed, the administrative data 16 will be generated by the system control circuit 15, and this administrative data 16 will be recorded on the system data field ARS of an optical disk 1. About two or more materials

which this recorded on the optical disk 1, it is recorded on the same optical disk 1, and management of these materials is simplified [data / administrative / 16 /, such as a history,] much more.
[0066] That is, this optical disk 1 is edited by the optical disk unit 20 in an inclusion site (drawing 3). Moreover, the contents of coverage are transmitted to a broadcasting station from this optical disk unit 20, an optical disk 1 is brought back to a broadcasting station from an inclusion site, for example, it is edited by the same optical disk unit. Furthermore, an edit result is sent out if needed.
[0067] That is, in an optical disk unit 20 (drawing 3), if loaded with an optical disk 1, an optical pickup 22 will seek in the inner circumference side of an optical disk 1, the administrative data 16 recorded on the system data field ARS by the side of inner circumference will be acquired by the system control circuit 23, and, thereby, the record positional information of the coded data DVA and DVB recorded on the optical disk 1 and the audio data DAA and DAB, a history, etc. will be acquired in the system control circuit 23.
[0068] With an optical disk unit 20, if an operator directs reproduction of a desired video signal and an audio signal by this history, after the rotation drive of the optical disk 1 has been carried out at high speed by the conditions of a constant angular velocity, it will seek to the field to which an optical pickup 22 corresponds, and the regenerative signal RF of a high transfer rate will be reproduced as compared with the time of record from the field for which an operator asks. Furthermore this regenerative signal RF is changed into reproduction data, from this reproduction data, the decode of coded data and the audio data is carried out, and they are stored in memory 26.
[0069] If coded data or audio data is accumulated only for the specified quantity, an optical pickup 22 seeks, and the audio data or the coded data corresponding to the data accumulated in this memory 26 will be similarly reproduced from an optical disk 1, and it will be accumulated in memory 26 at this memory 26.
[0070] Reproduction of this coded data and audio data is repeated by turns, in an optical disk unit 20, intermittently, a high transfer rate is reproduced from an optical disk 1, and the coded data based on the resolution and tone quality which the operator chose, and audio data are accumulated at memory 26.
[0071] It is parallel to accumulation of such coded data and audio data, and in an optical disk unit 20, it is outputted to the data extension circuit 28 and the DEPAKKINGU circuit 29 by the data stream which the coded data and audio data which were accumulated at memory 26 follow, respectively, and video signal SVA by the resolution and tone quality for which an operator asks or SVB, audio signal SAA, or SAB is reproduced.
[0072] Thereby, in an operator, an editing point is set up one by one by this reproduced video signal SVA or SVB, audio signal SAA, or SAB, and the edit list 33 with this editing point is created by the system control circuit 15.
[0073] If it does still in this way, the edit list 33 is created and an operator directs a preview, with an optical disk unit 20, coded data and audio data will be reproduced by turns by the high transfer rate in the sequence by the edit list 33 more nearly intermittently than an optical disk 1 like the time of the reproduction which the optical pickup 22 sought and was mentioned above by the sequence according to the edit list 33. The video signal and audio signal which were reproduced by the sequence to which the coded data and audio data which were furthermore reproduced were outputted to the data extension circuit 28 and the DEPAKKINGU circuit 29 by the data stream which was accumulated temporarily at memory 26 and continued, and followed the edit list by this are outputted.
[0074] By this, the optical disk of one sheet can be managed, an optical disk unit 20 can be loaded with this optical disk 1 of one sheet, and a coverage result can be edited in an operator, by the simple handling which sets up an editing point, and an edit result can be checked.
[0075] An editing task is anew performed if needed by this edit result in this way, and the edit list 33 is updated by the system control circuit 15 in an optical disk unit 20 corresponding to change of the editing point by the operator. Moreover, if the edit list 33 is decided, an optical pickup 22 will seek to the system data field ARS of an optical disk 1 by control of the system control circuit 15 following operation of an operator, and where the rotation drive of the optical disk 1 is carried out by ZCLV, this edit list 33 will be recorded on the system data field ARS.
[0076] Thereby, with this optical disk 1, by loading an on-line optical disk unit with this optical disk 1, and reproducing the material of an optical disk 1 according to the edit list recorded on this optical disk 1, the online output of the edit result can be carried out, and process from coverage to program sending out can be performed with the record medium of 1 after all. Moreover, in a coverage site, process from coverage to program sending out can be similarly performed with the record medium of 1 by reproducing coded data DVA and the audio data DAA according to an edit list with this optical disk unit 20, and sending out to an SNG circuit through an external instrument. The contents of the conventional material tape and a work tape and an edit list can be handled to one by these, and management of the part material and handling can be improved.
[0077] On the other hand, when creating an edit list with the personal computer connected outside and creating the edit list by control of this personal computer, in an optical disk unit 20, the video data outputted from the data extension circuit 28 and the audio data outputted from the DEPAKKINGU circuit 29 are outputted to a personal computer. At this time, with an optical disk unit 20, it is reproduced alternatively and the video data DVB 1 based on the low resolution recorded on the optical disk 1 and the audio data DAB 1 based on the quality of low-pitched sound are outputted to a personal computer.
[0078] Thereby, to a personal computer, the video data DVB 1 based on a low transfer rate and the audio data DAB 1 will be offered, with the personal computer by simple composition, these video datas DVB 1 and the audio data DAB 1 can be dealt with, and an editing point can be set up. That is, in this way, in the video data DVB 1 based on a low resolution, and the audio data DAB 1 based on the quality of low-pitched sound, also in the personal computer by the low simple composition of a working speed, it can be dealt with simply and the changes (wipe etc.) in an editing point can be checked.
[0079] In an optical disk unit 20, if the edit list 33 is created in a personal computer, this edit list 33 is incorporated, processing of a preview is performed if needed, and the edit list 33 is recorded on an optical disk 1 like the case where the edit list 33 is created with this optical disk unit 20, and an edit result is sent out according to this edit list 33. Moreover, when creating the edit list 33 by control of a personal computer, the edit list 33 is similarly recorded on an optical disk 1, and an edit result is sent out according to this edit list 33.
[0080] On the other hand, at a broadcasting station, when creating an edit list before bringing an optical disk 1 back to a broadcasting station at a broadcasting station, when the contents of coverage are checked, for example, the time of broadcasting is near at hand, with an optical disk unit 20, the audio data DAB based on coded data DVB by the low resolution and the quality of low-pitched sound are reproduced, and it is accumulated from an optical disk 1 at memory 26. Coded data DVB and the audio data DAB which were furthermore accumulated at this memory 26 are transmitted

through a modem 30. At this time, with an optical disk unit 20, even if it transmits the contents which covered by the low transfer rate by sending out the audio data DAB based on coded data DVB by the low resolution, and the quality of low-pitched sound, it becomes possible to transmit by short time.
[0081] The contents of coverage can be simply transmitted using the general communication line which becomes, for example by the telephone line by this. Moreover, they are collectively transmitted by the administrative data 16 at this time, the edit conditions in this optical disk unit 20 and the same conditions are formed in a broadcasting station by this, and environment as if it edited the optical disk 1 is formed at a broadcasting station.
[0082] Thereby, if an edit list is created at a broadcasting station, in this edit system, an optical disk 1 will be brought home, the video signal of high resolution and the audio signal of the quality of loud sound will be reproduced with this edit list, and broadcast will be presented.
[0083] Moreover, the edit list sent out from the broadcasting station is acquired by the modem 30, and with an optical disk unit 20, according to this edit list 33, the video signal of high resolution and the audio signal of the quality of loud sound are reproduced, and it is sent out to a broadcasting station through an SNG circuit etc. The content which covered by these can be processed quickly and handling can be markedly improved on a target as compared with the former.
[0084] (1-3) Coded-data-DVA. according to the composition beyond the effect of the gestalt of the 1st operation, it is resolution which is different in the video signal of 1 — By recording on an optical disk 1 by DVB, and recording the audio signal corresponding to this video signal on an optical disk 1 with the audio data DAA and DAB based on different tone quality The video signal of the low resolution for editing tasks, the audio signal of the quality of low-pitched sound, and the video signal of the high resolution for broadcast and the audio signal of the quality of loud sound can be managed with the record medium of 1, and management of the part material and handling can be simplified.
[0085] The video signal of the low resolution further for these editing tasks and the audio signal of the quality of low-pitched sound can be transmitted with a simple channel if needed, and, thereby, from coverage to online can be performed by short time.
[0086] Moreover, the video signal of this low resolution and the audio signal of the quality of low-pitched sound can also be processed by computer of simple composition, management of a material and handling can be simplified by this, and edit processing can be carried out by various systems.
[0087] Moreover, by transmitting the administrative data and the edit list accompanying this, the content which covered can be processed quickly and handling can be markedly improved on a target as compared with the former.
[0088] Moreover, by recording administrative data on this optical disk 1, and recording an edit list further, the process from coverage to broadcast can be managed with the record medium of 1, and management of the part material and handling can be simplified.
[0089] (2) it is the gestalt of other operations — in the gestalt of above-mentioned operation, although the case where the video signal of one channel and an audio signal were recorded on an optical disk was described, this invention can be widely applied, not only this but when recording the video signal of two or more channels, and an audio signal in simultaneous parallel
[0090] Moreover, although the case which records a video signal with two kinds of resolution, and records an audio signal with two kinds of tone quality where it recorded was described, you may record this invention with the resolution of two or more step story, and tone quality not only this but if needed.
[0091] Furthermore, although the case where divided the information recording surface of an optical disk into a small field in the shape of a concentric circle in the gestalt of above-mentioned operation, and each smallness field was assigned to the coded data of high resolution and the coded data of a low resolution one by one was described, this invention may record the coded data and audio data which carried out time multiplexing not only by this but by for example, an error correction batch and a data compression unit on an optical disk as it is by this data stream that carried out time multiplexing, and may record the coded data from which resolution differs on an optical disk.
[0092] Moreover, although the case where record reproduction was carried out by the optical pickup of 1 was described, you may make it this invention reproduce an audio signal and a video signal in the gestalt of above-mentioned operation, respectively not only by this but by two or more optical pickups.
[0093] Moreover, you may record from the inner circumference side which field blurring etc. is stabilized few when data transfer rate with this invention not only this but sufficient can be secured, although the case where a video signal and an audio signal were recorded cyclically one by one from a periphery side in the gestalt of above-mentioned operation was described, and can reproduce data, and it is a relation with address management, and you may record dispersedly across a fixed field in between.
[0094] Although the case where a system data field was formed in the most inner circumference was furthermore described in the gestalt of above-mentioned operation, this invention can be set as various fields not only this but if needed. Moreover, it can be similarly set as various fields about a system data field.
[0095] this invention may drive an optical disk according to the conditions of a constant angular velocity in the both sides of record reproduction, when sufficient storage capacity which is the case where a magneto-optic disk is applied not only as this but as for example, a disk-like record medium although the case where drove an optical disk according to the conditions of ZCLV in the gestalt of above-mentioned operation, recorded a digital video signal etc., and it reproduced according to the conditions of a constant angular velocity was described can furthermore be secured. Moreover, when desired data can be certainly recorded also with the linear velocity which is different by the inner circumference and periphery side with control of the amount of laser beams even when using a phase-change type optical disk, in the both sides of record reproduction, you may drive an optical disk according to the conditions of a constant angular velocity.
[0096] Moreover, in the gestalt of above-mentioned operation, although the case where carried out the data compression of the digital video signal by MPEG, and it recorded on an optical disk was described, this invention can be widely applied, not only this but when carrying out a data compression by various technique and recording.
[0097] When a magneto-optic disk recordable not only on this but both sides and a write-once type optical disk may be used and sufficient storage capacity is securable, you may make it this invention use only one side furthermore, although the case where a digital video signal and a digital audio signal were recorded on a phase-change type optical disk recordable on both sides in the gestalt of above-mentioned operation was described.
[0098] Moreover, in the gestalt of above-mentioned operation, although the case where the coded data from which resolution differs by the television camera, and the audio data with which tone quality differs were recorded was

described, this invention may record the coded data from which an optical disk unit is carried for example, not only in this but in a coverage site, and resolution differs with this optical disk unit, and the audio data with which tone quality differs.

[0099]

[Effect of the Invention] In case coding processing of the video signal of 1 is carried out and it records on the optical disk of 1 according to this invention as mentioned above, management of a material and handling can be simplified by generating and recording two coded data from which the amount of data differs.

[Translation done.]

TECHNICAL FIELD

[The technical field to which invention belongs] Concerning an optical disk unit, this invention is a coverage site and can be applied to the field edit system which processes the video signal acquired from a television camera. In case this invention carries out coding processing of the video signal of 1 and records it on the optical disk of 1, it enables it to simplify management of a material, and handling by generating and recording two coded data from which the amount of data differs.

[Translation done.]

PRIOR ART

[Description of the Prior Art] It is made as [create / an edit list (EDL:Edit Decision List) / in the editing task using the video tape recorder / conventionally / by the work tape created from the material tape].
[0003] That is, in a coverage site, a desired photographic subject is picturized, for example by the camera one apparatus video tape recorder, and the contents of coverage which come to be as a result of an image pck-up are recorded on a magnetic tape. In an editing task, this magnetic tape is dealt with as a material tape, this material tape is dubbed to a magnetic tape with a low resolution, and a work tape is created.
[0004] Furthermore, an edit list is created by offline editing using this work tape of low quality of image, and the online-editing work using the material tape is done with this edit list. It is made as [create / an edit list / these / by the simple system / by the conventional editing task].
[0005]
[Problem(s) to be Solved by the Invention] However, when creating and carrying out the editing task of the work tape in this way than a material tape, there is a problem to which management of a material and handling become complicated.
[0006] this invention was made in consideration of the above point, and tends to propose the optical disk unit which can simplify management of a material, and handling as compared with the former.

[Translation done.]

EFFECT OF THE INVENTION

[Effect of the Invention] In case coding processing of the video signal of 1 is carried out and it records on the optical disk of 1 according to this invention as mentioned above, management of a material and handling can be simplified by generating and recording two coded data from which the amount of data differs.

[Translation done.]

MEANS

[Means for Solving the Problem] In this invention, in order to solve this technical problem, by the 2nd data compression means, data compression processing of the previous video signal is carried out, the 2nd coded data is generated, and these [1st] and the 2nd coded data are recorded on an optical disk so that data compression processing of the predetermined video signal may be carried out, the 1st coded data may be generated and the amount of transaction datas may become small by the 1st data-processing means as compared with the 1st coded data.
[0008] If the 2nd coded data with the small amount of transaction datas is generated as compared with the 1st coded data and this 1st coded data and these [1st] and the 2nd coded data are recorded on an optical disk, the content of a material tape and the content of a work tape in the conventional video tape recorder are storable in the record medium of 1. The optical disk of 1 can be managed and handled by these, an edit list can be simply created by the 2nd coded data, and the 1st coded data can be edited with this edit list.
[0009]
[Embodiments of the Invention] Hereafter, the gestalt of operation of this invention is explained in full detail, referring to a drawing suitably.
[0010] (1) The block diagram 2 of the gestalt of operation of the gestalt (1-1) 1st of the 1st operation is a plan showing the optical disk applied to the edit system concerning the gestalt of the 1st operation. This optical disk 1 is contained and held at predetermined cartridge 1A, and is made as [reduce / penetration of dust etc. / by this]. Furthermore, if devices, such as a television camera and an optical disk unit, are loaded, an optical disk 1 is formed so that the shutter arranged at this cartridge 1A may slide and an information recording surface may be exposed, and is made as [access / by this / with a television camera, an optical disk unit, etc. / it].
[0011] The pulley groove which bears the guide slot on the laser beam moves in a zigzag direction, and is formed, this optical disk 1 becomes with the so-called phase-change type optical disk in which rewriting which formed the information recording surface in both sides is possible, it carries out a rotation drive so that the meandering period of this pulley groove in a laser-beam irradiation position may turn into a fixed period, and it is made as [carry out / the rotation drive of the optical disk 1 / according to the conditions of a ZCLV (Zone Constant Linear Verocity) constant linear velocity].
[0012] As for this optical disk 1, the system data field ARS is formed in an inner circumference side. The system data field ARS is divided into three fields ARSA, ARSB, and ARSC in the shape of a concentric circle, and the administrative data recorded on the field ARSA of the most inner circumference at the time of manufacture of this optical disk are recorded here. This administrative data is constituted from the optimal quantity of light at the time of data logging to an optical disk 1, and an optical disk 1 by a common serial number, the peculiar discernment data assigned to each optical disk 1, respectively here.
[0013] The administrative data of the video signal recorded on the optical disk 1 and an audio signal are recorded on the field ARSB by the side of the continuing periphery. Administrative data are constituted by data required for access of each video signal and an audio signal, data required for decode, the data of the conditions at the time of an image pck-up, the discernment data of being the file which can be edited set up by the cameraman here.
[0014] Among these, data required for access are constituted by the time code at the address information [which becomes in the record starting position of each file by the video signal and the audio signal and a record end position], recording start, and record end time etc. Moreover, data required for decode are constituted by the format of a video signal and an audio signal, the sampling rate of an audio signal, compression / incompressible discernment data, etc. The data of the conditions at the time of an image pck-up are constituted by the picturized time, a place, a cameraman's name, and the setting data of a television camera, and the white balance by which setting data were set as the television camera, gain, level setting of an audio signal, the data of drawing, etc. are recorded. Thereby with the optical disk 1, it is made as [check / the history of each file recorded on the optical disk 1 etc.] with the administrative data recorded on this field ARSB.
[0015] As for the field ARSC by the side of the continuing periphery, the data for edit are recorded. The edit list into which each file which the data for this edit were recorded by file format here, and was recorded on this optical disk 1 is edited is recorded. In addition, the data of the editing point set up about each file are recorded by a time code and the address in order of reproduction with the gestalten (for example, cut edit, cross fade, etc.) of changes, and this edit list is formed. Thereby, an optical disk 1 chooses the edit list of desired, and is made as [reproduce / one by one / the content of coverage recorded according to this selected edit list].
[0016] On the other hand, the field ARU by the side of a periphery is assigned to a user area, and a digital video signal and a digital audio signal are recorded. A user area ARU is divided into the small fields ARU1 and ARU2 and .... in the shape of a concentric circle here. Furthermore, each smallness fields ARU1 and ARU2 and .... are divided into five fields in the shape of a concentric circle, the field of the outermost periphery of these five fields is assigned to the record section of the digital video signal V1, and each field by the side of inner circumference is assigned to the record section of the digital audio signals A1-A4 of four channels, respectively. Thereby with this optical disk 1, it is made as [record / corresponding to a digital video signal / the voice of the description by the voice of the description by the photographic subject at the time of picturizing a photographic subject, for example and surrounding voice (it is called environmental sound below) and announcer and various languages, background music, etc.].
[0017] With the gestalt of this operation, each smallness fields ARU1 and ARU2 and .... which were assigned by doing in this way are cyclically made as [assign / the system of the 1st and 2nd video signals] one by one from the periphery side.

[0018] Drawing 1 is the block diagram showing the recording system of the television camera applied to this edit system. This television camera 2 records digital video signal SVA and audio signal SAA which are outputted from a camera unit on an optical disk 1.
[0019] That is, in this television camera 2, movable [of the optical pickup 3] is carried out to radial [of an optical disk 1] according to the thread mechanism which is not illustrated, and it is made as [access / the field of a request of an optical disk 1 / by this]. Moreover, an optical pickup 3 irradiates a laser beam at an optical disk 1, and from the light-receiving result of the return light, focal control is carried out, and it generates and outputs tracking control and the regenerative signal from which it returns further and signal level changes according to the quantity of light of light.
[0020] Moreover, an optical pickup 3 outputs the monitor signal of the laser-beam quantity of light with which signal level changes according to the quantity of light of a laser beam, and starts the quantity of light of a laser beam from the quantity of light at the time of reproduction intermittently to the optimal quantity of light of pit formation according to the driving signal SR outputted from the channel coding circuit 4 by control of the servo circuit on the basis of the signal level of this monitor signal. Thereby, a television camera 2 starts the quantity of light of a laser beam intermittently, and carries out heat record of the data of the request to an optical disk 1.
[0021] In the case of this data logging, an optical pickup 3 seeks each field of a user area ARU cyclically one by one, and displaces it from a periphery side to an inner circumference side one by one in each field, and carries out heat record of a digital video signal and the digital audio signal at an optical disk 1. Thereby, by the television camera 2, when the rotation drive of the optical disk 1 is carried out according to the conditions of a constant angular velocity, it is made from the periphery side field which can reproduce the data recorded by the high transfer rate as [record / a digital video signal and a digital audio signal / one by one / on an optical disk 1].
[0022] By control of the servo circuit which is not illustrated, at the time of record, a spindle motor 5 carries out the rotation drive of the optical disk 1 according to the conditions of ZCLV, and carries out the rotation drive of the optical disk 1 according to the conditions of the constant angular velocity of high rotational speed as compared with the time of record at the time of reproduction. It is made as [make / to seek using the latency time which is made as / reproduce / the video signal and audio signal which processed intermittently the regenerative signal obtained by the high transfer rate in a television camera 2 at the time of reproduction, and continued], and processes intermittently, and is generated / by this / an optical pickup 3].
[0023] Video process circuit 6A receives digital video signal SVA, and amends the signal level of this digital video signal SVA, and removes and outputs unnecessary data, such as a blanking period.
[0024] The data compression of the data compression circuit 7A is carried out one by one by the format of the convention of the digital video signal outputted from this video process circuit 6A to MPEG (Moving Picture Experts Group), and it outputs coded data DVA. At this time, data compression circuit 7A makes a unit GOP (Group Of Pictures) which becomes for example, per data compression, and it carries out the data compression of the digital video signal so that coded data DVA may become the fixed amount of data.
[0025] Video process circuit 6B amends the signal level of digital video signal SVA, and removes and outputs unnecessary data, such as a blanking period. At this time, video process circuit 6B oppresses the high region of digital video signal SVA by the low pass filter, and, thereby, reduces and outputs the resolution of digital video signal SVA.
[0026] The data compression of the data compression circuit 7B is carried out one by one by the format of the convention of the digital video signal outputted from this video process circuit 6B to MPEG, and it outputs coded data DVB. At this time, data compression circuit 7B increases a data compression rate as compared with data compression circuit 7A by setup of a quantization table, and to the amount of data of coded data DVA, it carries out the data compression of the digital video signal so that about 1/of the amounts of transaction datas may be set to 10.
Analog-to-digital-conversion circuit (A/D) 8A carries out analog-to-digital-conversion processing of the audio signal SAA, and outputs audio data. In addition, this audio signal SAA is acquired with the microphone arranged at this television camera 2, and analog-to-digital-conversion circuit 8A carries out analog-to-digital-conversion processing by setup of an operator by sampling rates, such as 44 [48 [kHz]/16 [Bit] and] [kHz]/8 [Bit].
[0027] Packing circuit 9A blocks and outputs the audio data outputted from analog-to-digital-conversion circuit 8A by the predetermined data unit. At this time, by an operator's selection, packing circuit 9A carries out the data compression of the audio data, and outputs them.
[0028] Analog-to-digital-conversion circuit 8B carries out analog-to-digital-conversion processing of the audio signal SAA by the sampling rate of a low sampling rate as compared with analog-to-digital-conversion circuit 8A, and, thereby, outputs the audio data with which tone quality comes to deteriorate as compared with analog-to-digital-conversion circuit 8A.
[0029] Packing circuit 9B blocks and outputs the audio data outputted from analog-to-digital-conversion circuit 8B by the predetermined data unit. At this time, corresponding to the processing in packing circuit 9A, packing circuit 9B carries out the data compression of the audio data, and outputs them.
[0030] Memory 11 becomes by mass buffer memory, incorporates the coded data DVA and DVB outputted by address control of the memory control circuit 10 from the data compression circuits 7A and 7B, and the audio data DAA and DAB outputted from the packing circuits 9A and 9B one by one, and holds them temporarily. Furthermore, memory 11 divides coded data DVA and DVB and the audio data DAA and DAB by the predetermined time interval, blocks them one by one, per these blocks, carries out time multiplexing of coded data DVA and DVB and the audio data DAA and DAB, and outputs them. Two or more these time intervals are set as the period corresponding to GOP of coded data DVA and DVB here. At this time, memory 11 sandwiches sufficient time interval for seeking of an optical pickup 3 in between, and carries out time multiplexing of these coded data DVA and DVB and the corresponding audio data DAA and DAB one by one.
[0031] After the ECC circuit 13 adds an error correcting code, a time code, etc. to this data by which time multiplexing was carried out, it carries out interleave processing and outputs. At this time, about coded data DVA and DVB, the ECC circuit 13 sets the amount of data corresponding to this 1GOP for 1GOP as the ECC data block which becomes by the error correction batch, and adds [data / audio / DAA and DAB] the error correcting code of product-code form to each ECC data block, respectively.
[0032] By the modulation technique suitable for record of an optical disk 1, after the channel coding circuit 4 modulates the output data of this ECC circuit 13, it is changed into serial data and generates a driving signal SR. By the television camera 2, a predetermined time interval is inserted in between by these. The driving signal SR by coded data DVA, the driving signal SR by coded data DVB Do so that the driving signal SR by the audio data DAA and the driving signal SR

by the audio data DAB are cyclically outputted one by one in predetermined sequence. By making an optical pickup 3 seek corresponding to the output of this driving signal SR, and accessing cyclically the field where an optical disk 1 corresponds one by one It is made as [record / cyclically / the coded data DVA and DVB from which the resolution by video signal SVA differs, and the audio data DAA and DAB with which the tone quality by audio signal SAA differs / one by one / on an optical disk 1]. Thereby, by this television camera 2, DAB is recorded on the record medium of the coded data DVA and DVB from which the resolution by video signal SVA differs, and the audio data DAA and 1 with which the tone quality by audio signal SAA differs, and it is made as [simplify / management of each material by these coded data DVA and DVB and the audio data DAA and DAB / as compared with the former].

[0033] If it is constituted by the microcomputer which controls operation of this television camera 2 and is loaded with an optical disk 1, or if a power supply is started, the system control circuit 15 will control a servo circuit, will make an optical pickup 3 seek in the inner circumference side of an optical disk 1, and will acquire the administrative data 16 recorded on the system data field ARS of an optical disk 1.

[0034] The system control circuit 15 records video signal SVA and audio signal SAA on an optical disk 1 by the system from which the resolution mentioned above and tone quality differ following operation of a cameraman. At this time, the system control circuit 15 detects the free area of an optical disk 1 etc. with the acquired administrative data 16, and controls access of an optical pickup 3 based on this detection result.

[0035] Moreover, if record of the video signal to an optical disk 1 and an audio signal is completed, at the time of the address which shows the record starting position of this video signal and an audio signal, and a record end position, and a recording start, the system control circuit 15 will generate administrative data by the time code at the time of a record end etc., and will add them to the administrative data 16 which acquired this administrative data from the optical disk 1. At this time, the system control circuit 15 adds the data of the conditions at the time of the image pck-up inputted by the format of the sampling rate of the data of the conditions at the time of an image pck-up, and the audio data DAA and DAB, compression / incompressible discernment data, and digital video signal SVA, and operation of an operator etc., and generates administrative data.

[0036] Furthermore, the system control circuit 15 makes the system data field ARS seek an optical pickup 3 to predetermined timing, and updates the system data field ARS so that the administrative data 16 which carried out in this way and were updated may be in agreement with the administrative data of the system data field ARS of an optical disk 1.

[0037] It is made as [record / data required for management of these materials / on the optical disk 1 which recorded two or more materials by the television camera 2 by these], and is made as / simplify / handling of these materials].

[0038] In addition, in addition to the recording system shown in this drawing 1 , a television camera 2 has a reversion system and is made as [check / the content recorded on the optical disk 1 / for example, by the view fur].

[0039] Drawing 3 is the block diagram showing the reversion system of an optical disk unit. This optical disk unit 20 is a viewer who edits the video signal and audio signal which did in this way and were recorded on the optical disk 1, creates an edit list by operation of an operator, and outputs an edit result according to this created edit list following operation of an operator. Moreover, it replaces with this, the coded data based on a low resolution is transmitted to a broadcasting station, and the edit list created by this coded data at the broadcasting station is acquired. Furthermore according to this acquired edit list, an edit result is sent out. moreover, the edit list which outputted the video data based on a low resolution to the personal computer, and was created with this personal computer — or the edit list created by control of a personal computer is recorded on an optical disk 1, and an edit result is outputted.

[0040] In this optical disk unit 20, a spindle motor 21 carries out the rotation drive of the optical disk 1 according to the conditions of a constant angular velocity by control of the servo circuit which is not illustrated. At this time, a spindle motor 21 carries out the rotation drive of the optical disk 1 with a rotational speed more nearly high-speed than the full speed at the time of record.

[0041] By control of the system control circuit 23, movable [of the optical pickup 22] is carried out to radial [of an optical disk 1], and, thereby, it accesses the field of a request of an optical disk 1. Moreover, an optical pickup 22 irradiates a laser beam at an optical disk 1, and from the light-receiving result of the return light, focal control is carried out, and it generates and outputs tracking control and the regenerative signal RF from which it returns further and signal level changes according to the quantity of light of light. At the time of reproduction, an optical pickup 22 outputs the regenerative signal RF of a high transfer rate corresponding to the rotational speed of this optical disk 1, when the rotation drive of the optical disk 1 is carried out by rotational speed more nearly high-speed than the full speed at the time of record.

[0042] Furthermore, when reproducing the video signal by high resolution when reproducing the video signal according an optical pickup 22] to a low resolution the time of reproduction so that the regenerative signal RF by coded data DVB and the regenerative signal RF by the audio data DAB may continue by turns one by one and, the regenerative signal RF by coded data DVA and the regenerative signal RF by the audio data DAA are predetermined time intervals so that it may continue by turns one by one, and each smallness field of a user area ARU is sought cyclically one by one.

[0043] In the regenerative-signal processing circuit which is not illustrated, from this regenerative signal RF, this reversion system reproduces a clock, carries out analog-to-digital-conversion processing of the regenerative signal RF on the basis of this clock, and generates a digital regenerative signal. Furthermore, a reversion system processes this digital regenerative signal with the application of the technique of PRML (Partial Response Maximum Likelihood), and generates the reproduction data corresponding to the driving signal SR (drawing 1) outputted from the channel coding circuit 4.

[0044] The channel decoding circuit 24 decodes and outputs the output data of the ECC circuit 13 from this reproduction data. The ECC decoding circuit 25 carries out error correction processing of the output data of the channel decoding circuit 24, and carries out day interleave processing, and outputs. With the gestalt of this operation, when an optical pickup 22 seeks one by one by the predetermined time interval, the ECC decoding circuit 25 will carry out error correction processing of the ECC data block by coded data DVA or DVB, and the ECC data block by the audio data DAA and DAB by turns per predetermined block corresponding to access of this optical pickup 22, and will output coded data DVA or DVB, and the audio data DAA and DAB. Moreover, it will output by the high transfer rate corresponding to the rotational speed of an optical disk 1 at this time.

[0045] Memory 26 becomes by mass buffer memory, incorporates the coded data DVA outputted by address control of the memory control circuit 27 from the ECC decoding circuit 25 or DVB, and the audio data DAA and DAB, and holds

them temporarily. Furthermore, memory 26 carries out time-axis extension of the incorporated coded data DVA or DVB, and the audio data DAA and DAB, and it outputs them to the data extension circuit 28 and the DEPAKKINGU circuit 29 so that it may continue by time series, respectively. Moreover, by control of the system control circuit 23, coded data DVA or DVB, and the audio data DAA and DAB are repeated by turns per predetermined block, and it outputs to a modem 30.

[0046] The data extension circuit 28 receives the coded data DVA or DVB which continues by time series through the memory control circuit 27, by setup of the system control circuit 23, carries out data extension and, thereby, decodes the video data DVA1 with high resolution, or the low video data DVB 1 of resolution. Furthermore, the data extension circuit 28 is outputted to the personal computer connected to this optical disk unit 20 by an operator's selection through the predetermined interface circuitry about coded data DVB1 by the low resolution.

[0047] Thereby with the optical disk unit 20, it is made as [create / an edit list / it is made as / carry out / the monitor of the desired video signal] also with the personal computer connected outside by communication with this personal computer and the system control circuit 23, and an edit list is created with a personal computer, and / in the system control circuit 23 / by control of a personal computer].

[0048] By setup of the system control circuit 23, the video process circuit 31 adds data, such as a blanking, to the video data DVA1 or DVB1 outputted from this data extension circuit 28, and reproduces digital video signal SVA at the time of record, or SVB. Furthermore, this digital video signal SVA or SVB is displayed on the monitor of built-in in an optical disk unit 20, and the video process circuit 31 outputs it to an external instrument.

[0049] The DEPAKKINGU circuit 29 receives the audio data DAA and DAB which continue by time series through the memory control circuit 27, by setup of the system control circuit 23, processes these audio data DAA and DAB by data processing contrary to the packing circuits 9A and 9B, and, thereby, decodes the audio data DAA 1 of the quality of loud sound, or the audio data DAB 1 of the quality of low-pitched sound. The DEPAKKINGU circuit 29 is outputted to the personal computer connected to this optical disk unit 20 by an operator's selection with the video data DVB 1 of a low resolution through the predetermined interface circuitry about the audio data DAB 1 of the quality of low-pitched sound.

[0050] By control of the system control circuit 23, by the sampling rate at the time of record, the digital-to-analog-conversion circuit (D/A) 32 carries out digital-to-analog-conversion processing of the output data of the DEPAKKINGU circuit 29, reproduces audio signal SAA at the time of record, or SAB by this, and outputs it to a loudspeaker.

[0051] Through the memory control circuit 27, a modem 30 receives coded data DVB of a low resolution, and the audio data DAB of the quality of low-pitched sound, and sends out these data DVB and DAB to a broadcasting station etc. through the telephone line. A modem 30 combines the administrative data corresponding to these data DVB and DAB that the system control circuit 23 acquired in advance, transmits them to a broadcasting station etc., and enables it to create an edit list in advance at a transmission place by this at this time. Moreover, a modem 30 acquires the edit list which did in this way and was created with coded data DVB of a low resolution, and the audio data DAB of the quality of low-pitched sound through the telephone line, and notifies this edit list to the system control circuit 23.

[0052] If it is constituted by the microcomputer which controls operation of this optical disk unit 20 and is loaded with an optical disk 1, or if a power supply is started, the system control circuit 23 will control a servo circuit, will make an optical pickup 3 seek in the inner circumference side of an optical disk 1, and will acquire the administrative data 16 recorded on the system data field ARS of an optical disk 1.

[0053] The system control circuit 23 controls operation of this reversion system while making an optical pickup 22 seek on the basis of this acquired administrative data 16 following the control command from a personal computer following operation of an operator, and it reproduces the video signal and audio signal for which an operator asks by this. At this time, the system control circuit 23 makes an optical pickup 3 seek cyclically one by one, and sets up the conditions of the data extension circuit 28, the DEPAKKINGU circuit 29, the video process circuit 31, and the digital-to-analog-conversion circuit 32 based on administrative data so that the audio signal by the video signal by the low resolution or high resolution, the quality of low-pitched sound, or the quality of loud sound may be alternatively reproduced corresponding to an operator's selection.

[0054] The system control circuit 23 can be made to carry out a monitor with the monitor of built-in of the video signal and audio signal which were recorded on the optical disk 1, and a loudspeaker, and enables it to output the video data DVB 1 based on a low resolution, and the audio data DAB 1 based on the quality of low-pitched sound to a personal computer by this.

[0055] Furthermore, in reproduction of this video signal and an audio signal, the system control circuit 23 receives a setup of the editing point by the operator indirectly by operation of a personal computer directly by operation of the handler arranged at this optical disk unit 20, and creates the edit list 33 with this editing point, and receives change of the edit list 33. Moreover, when an operator performs operation of a preview, while making an optical pickup 22 seek according to this edit list 33, operation of a reversion system is controlled, this plays an optical disk 1 according to the edit list 33, and an edit result is outputted. Furthermore, by operation of an operator, if the edit list 33 is decided, the system control circuit 23 will record this edit list 33 on the system data field ARS of an optical disk 1.

[0056] Moreover, the system control circuit 23 records the edit list 33 on an optical disk 1 while it acquires this edit list 33 by operation of an operator and performs processing of a preview similarly, when an edit list is created in a personal computer.

[0057] On the other hand, when creating an edit list until it transmits beforehand the content recorded, for example on the optical disk 1 to a broadcasting station and brings an optical disk 1 back to a broadcasting station, the system control circuit 23 reproduces the video signal of a low resolution, and the audio signal of the corresponding quality of low-pitched sound one by one from an optical disk 1 by operation of an operator, and sends them out through a modem 30. The administrative data 16 are combined at this time, it sends out from a modem 30, and this provides a broadcasting station with the conditions of the same material as the edit material which this optical disk unit 20 comes to hold, and an editing task by the video signal of a low resolution, and the audio signal of the quality of low-pitched sound.

[0058] Moreover, the system control circuit 23 will acquire this edit list 33 through a modem 30, if an edit list is sent out from a broadcasting station etc. Furthermore according to this edit list 33, an optical disk 1 is played, and video signal SVA by high resolving obtained as a result and audio signal SAA by the quality of loud sound are sent out to the transmission equipment which becomes with an external instrument. Thereby, the system control circuit 23 sends out

an edit result by the SNG circuit etc. according to the edit list created by the broadcasting station in advance.
[0059] (1-2) In the composition more than operation of the gestalt of the 1st operation, in a television camera 2 (drawing 1), if loaded with an optical disk 1, an optical pickup 3 will seek in the inner circumference side of an optical disk 1, and the administrative data 16 recorded on the system data field ARS by the side of inner circumference will be acquired by the system control circuit 15. Thereby in the system control circuit 15, the recordable field of an optical disk 1 is detected.
[0060] In a television camera, video signal SVA picturized in the camera unit receives predetermined processing by the video process circuits 6A and 6B, and the video signal SVB which comes to decrease resolution to video signal SVA is generated. Data compression processing of these video signals SVA and SVB is carried out by the technique of MPEG by the continuing data compression circuits 7A and 7B, respectively, and the data compression of the video signal SVB is carried out by the high data compression rate at this time. The coded data DVA based on the high resolution corresponding to the video signal recorded on the conventional material tape by this and coded data DVB by the low resolution corresponding to the video signal recorded on the conventional work tape are accumulated one by one at memory 11.
[0061] Moreover, in the analog-to-digital-conversion circuits 8A and 8B, audio signal SAA corresponding to video signal SVA is changed into the audio data based on a high sampling rate, and the audio data based on a low sampling rate, and is changed into the audio data DAB in which the data compression was carried out to the audio data DAA in which the data compression was carried out by the usual data compression rate, respectively by the high data compression rate in the packing circuits 9A and 9B where these audio data continue. The audio data DAA based on the quality of loud sound corresponding to the audio signal recorded on the conventional material tape by this and the audio data DAB based on the quality of low-pitched sound corresponding to the audio signal recorded on the conventional work tape are accumulated one by one at memory 11.
[0062] Thus, time base compaction of the coded data DVA and DVB accumulated temporarily at memory 11 and the audio data DAA and DAB is blocked and carried out for every predetermined time interval which made GOP the unit, these coded data DVA and DVB of these by which time base compaction was carried out, and the audio data DAA and DAB sandwich in between the time interval which seeking of an optical pickup 3 takes, and time multiplexing of them is carried out one by one, and they are outputted to the ECC circuit 13. Furthermore, in the ECC circuit 13, after an error correcting code is added per ECC data block, it is changed into the driving signal SR of an optical pickup 3 by the channel coding circuit 4. The quantity of light of the laser beam furthermore injected by this driving signal SR from an optical pickup 3 is intermittently started from the quantity of light at the time of reproduction; and, thereby, 1st video signal SVA, the 2nd video signal SVB, audio signal SAA corresponding to 1st video signal SVA, and the audio signal SAB corresponding to the 2nd video signal SVB are cyclically recorded on an optical disk 1 one by one in predetermined sequence.
[0063] The small field ARU1 assigned to the system of (drawing 2) and 1st video signal SVA from the periphery side of an optical disk 1 at this time, The field assigned to the video signal, the field assigned to the audio signal of one channel of this small field ARU1, The small field ARU2 assigned to the system of the 2nd video signal SVB, When an optical pickup 3 seeks cyclically the field assigned to the video signal and the field assigned to the audio signal of one channel of this small field ARU2 one by one corresponding to the sequence in a driving signal SR Moreover, when the rotation drive of the optical disk 1 is carried out by ZCLV corresponding to seeking of this optical pickup 3 Coded data DVA by these high resolutions, coded data DVB by the low resolution, audio signal SAA by the quality of loud sound, and the audio signal SAB by the quality of low-pitched sound are cyclically recorded on the field which corresponds, respectively one by one.
[0064] By the coded data DVA and DVB from which resolution differs [video signal SVA of 1] with an optical disk unit 20 by these With moreover, the audio data DAA and DAB based on the tone quality from which audio signal SAA of 1 differs It can be recorded on the optical disk 1 which becomes with the record medium of 1, the material by these coded data DVA and DVB and the material by the audio data DAA and DAB can be managed now unitary by this, and management of a material is simplified as compared with the case where it is based on the conventional magnetic tape.
[0065] If it does still in this way and record of the coded data DVA and DVB to an optical disk 1 and the audio data DAA and DAB is completed, the administrative data 16 will be generated by the system control circuit 15, and this administrative data 16 will be recorded on the system data field ARS of an optical disk 1. About two or more materials which this recorded on the optical disk 1, it is recorded on the same optical disk 1, and management of these materials is simplified [data / administrative / 16 /, such as a history,] much more.
[0066] That is, this optical disk 1 is edited by the optical disk unit 20 in an inclusion site (drawing 3). Moreover, the content of coverage is transmitted to a broadcasting station from this optical disk unit 20, an optical disk 1 is brought back to a broadcasting station from an inclusion site, for example, it is edited by the same optical disk unit. Furthermore, an edit result is sent out if needed.
[0067] That is, in an optical disk unit 20 (drawing 3), if loaded with an optical disk 1, an optical pickup 22 will seek in the inner circumference side of an optical disk 1, the administrative data 16 recorded on the system data field ARS by the side of inner circumference will be acquired by the system control circuit 23, and, thereby, the record positional information of the coded data DVA and DVB recorded on the optical disk 1 and the audio data DAA and DAB, a history, etc. will be acquired in the system control circuit 23.
[0068] With an optical disk unit 20, if an operator directs reproduction of a desired video signal and an audio signal by this history, after the rotation drive of the optical disk 1 has been carried out at high speed by the conditions of a constant angular velocity, it will seek to the field to which an optical pickup 22 corresponds, and the regenerative signal RF of a high transfer rate will be reproduced as compared with the time of record from the field for which an operator asks. Furthermore this regenerative signal RF is changed into reproduction data, from this reproduction data, the decode of coded data and the audio data is carried out, and they are stored in memory 26.
[0069] If coded data or audio data is accumulated only for the specified quantity, an optical pickup 22 seeks, and the audio data or the coded data corresponding to the data accumulated in this memory 26 will be similarly reproduced from an optical disk 1, and it will be accumulated in memory 26 at this memory 26.
[0070] Reproduction of this coded data and audio data is repeated by turns, in an optical disk unit 20, intermittently, a high transfer rate is reproduced from an optical disk 1, and the coded data based on the resolution and tone quality which the operator chose, and audio data are accumulated at memory 26.
[0071] It is parallel to accumulation of such coded data and audio data, and in an optical disk unit 20, it is outputted to

the data extension circuit 28 and the DEPAKKINGU circuit 29 by the data stream which the coded data and audio data which were accumulated at memory 26 follow, respectively, and video signal SVA by the resolution and tone quality for which an operator asks or SVB, audio signal SAA, or SAB is reproduced.
[0072] Thereby, in an operator, an editing point is set up one by one by this reproduced video signal SVA or SVB, audio signal SAA, or SAB, and the edit list 33 with this editing point is created by the system control circuit 15.
[0073] If it does still in this way, the edit list 33 is created and an operator directs a preview, with an optical disk unit 20, coded data and audio data will be reproduced by turns by the high transfer rate in the sequence by the edit list 33 more nearly intermittently than an optical disk 1 like the time of the reproduction which the optical pickup 22 sought and was mentioned above by the sequence according to the edit list 33. The video signal and audio signal which were reproduced by the sequence to which the coded data and audio data which were furthermore reproduced were outputted to the data extension circuit 28 and the DEPAKKINGU circuit 29 by the data stream which was accumulated temporarily at memory 26 and continued, and followed the edit list by this are outputted.
[0074] By this, the optical disk of one sheet can be managed, an optical disk unit 20 can be loaded with this optical disk 1 of one sheet, and a coverage result can be edited in an operator, by the simple handling which sets up an editing point, and an edit result can be checked.
[0075] An editing task is anew performed if needed by this edit result in this way, and the edit list 33 is updated by the system control circuit 15 in an optical disk unit 20 corresponding to change of the editing point by the operator. Moreover, if the edit list 33 is decided, an optical pickup 22 will seek to the system data field ARS of an optical disk 1 by control of the system control circuit 15 following operation of an operator, and where the rotation drive of the optical disk 1 is carried out by ZCLV, this edit list 33 will be recorded on the system data field ARS.
[0076] Thereby, with this optical disk 1, by loading an on-line optical disk unit with this optical disk 1, and reproducing the material of an optical disk 1 according to the edit list recorded on this optical disk 1, the online output of the edit result can be carried out, and process from coverage to program sending out can be performed with the record medium of 1 after all. Moreover, in a coverage site, process from coverage to program sending out can be similarly performed with the record medium of 1 by reproducing coded data DVA and the audio data DAA according to an edit list with this optical disk unit 20, and sending out to an SNG circuit through an external instrument. The content of the conventional material tape and a work tape and an edit list can be handled to one by these, and management of the part material and handling can be improved.
[0077] On the other hand, when creating an edit list with the personal computer connected outside and creating the edit list by control of this personal computer, in an optical disk unit 20, the video data outputted from the data extension circuit 28 and the audio data outputted from the DEPAKKINGU circuit 29 are outputted to a personal computer. At this time, with an optical disk unit 20, it is reproduced alternatively and the video data DVB 1 based on the low resolution recorded on the optical disk 1 and the audio data DAB 1 based on the quality of low-pitched sound are outputted to a personal computer.
[0078] Thereby, to a personal computer, the video data DVB 1 based on a low transfer rate and the audio data DAB 1 will be offered, with the personal computer by simple composition, these video datas DVB 1 and the audio data DAB 1 can be dealt with, and an editing point can be set up. That is, in this way, in the video data DVB 1 based on a low resolution, and the audio data DAB 1 based on the quality of low-pitched sound, also in the personal computer by the low simple composition of a working speed, it can be dealt with simply and the changes (wipe etc.) in an editing point can be checked.
[0079] In an optical disk unit 20, if the edit list 33 is created in a personal computer, this edit list 33 is incorporated, processing of a preview is performed if needed, and the edit list 33 is recorded on an optical disk 1 like the case where the edit list 33 is created with this optical disk unit 20, and an edit result is sent out according to this edit list 33. Moreover, when creating the edit list 33 by control of a personal computer, the edit list 33 is similarly recorded on an optical disk 1, and an edit result is sent out according to this edit list 33.
[0080] On the other hand, at a broadcasting station, when creating an edit list before bringing an optical disk 1 back to a broadcasting station at a broadcasting station, when the content of coverage is checked, for example, the time of broadcasting is near at hand, with an optical disk unit 20, the audio data DAB based on coded data DVB by the low resolution and the quality of low-pitched sound are reproduced, and it is accumulated from an optical disk 1 at memory 26. Coded data DVB and the audio data DAB which were furthermore accumulated at this memory 26 are transmitted through a modem 30. At this time, with an optical disk unit 20, even if it transmits the content which covered by the low transfer rate by sending out the audio data DAB based on coded data DVB by the low resolution, and the quality of low-pitched sound, it becomes possible to transmit by short time.
[0081] The content of coverage can be simply transmitted using the general communication line which becomes, for example by the telephone line by this. Moreover, they are collectively transmitted by the administrative data 16 at this time, the edit conditions in this optical disk unit 20 and the same conditions are formed in a broadcasting station by this, and environment as if it edited the optical disk 1 is formed at a broadcasting station.
[0082] Thereby, if an edit list is created at a broadcasting station, in this edit system, an optical disk 1 will be brought home, the video signal of high resolution and the audio signal of the quality of loud sound will be reproduced with this edit list, and broadcast will be presented.
[0083] Moreover, the edit list sent out from the broadcasting station is acquired by the modem 30, and with an optical disk unit 20, according to this edit list 33, the video signal of high resolution and the audio signal of the quality of loud sound are reproduced, and it is sent out to a broadcasting station through an SNG circuit etc. The content which covered by these can be processed quickly and handling can be markedly improved on a target as compared with the former.
[0084] (1-3) Coded-data-DVA. according to the composition beyond the effect of the gestalt of the 1st operation, it is resolution which is different in the video signal of 1 — By recording on an optical disk 1 by DVB, and recording the audio signal corresponding to this video signal on an optical disk 1 with the audio data DAA and DAB based on different tone quality The video signal of the low resolution for editing tasks, the audio signal of the quality of low-pitched sound, and the video signal of the high resolution for broadcast and the audio signal of the quality of loud sound can be managed with the record medium of 1, and management of the part material and handling can be simplified.
[0085] The video signal of the low resolution further for these editing tasks and the audio signal of the quality of low-pitched sound can be transmitted with a simple channel if needed, and, thereby, from coverage to online can be performed by short time.

[0086] Moreover, the video signal of this low resolution and the audio signal of the quality of low-pitched sound can also be processed by computer of simple composition, management of a material and handling can be simplified by this, and edit processing can be carried out by various systems.
[0087] Moreover, by transmitting the administrative data and the edit list accompanying this, the content which covered can be processed quickly and handling can be markedly improved on a target as compared with the former.
[0088] Moreover, by recording administrative data on this optical disk 1, and recording an edit list further, the process from coverage to broadcast can be managed with the record medium of 1, and management of the part material and handling can be simplified.
[0089] (2) it is the form of other operations — in the form of above-mentioned operation, although the case where the video signal of one channel and an audio signal were recorded on an optical disk was described, this invention can be widely applied, not only this but when recording the video signal of two or more channels, and an audio signal in simultaneous parallel
[0090] Moreover, although the case which records a video signal with two kinds of resolution, and records an audio signal with two kinds of tone quality where it recorded was described, you may record this invention with the resolution of two or more step story, and tone quality not only this but if needed.
[0091] Furthermore, although the case where divided the information recording surface of an optical disk into a small field in the shape of a concentric circle in the form of above-mentioned operation, and each smallness field was assigned to the coded data of high resolution and the coded data of a low resolution one by one was described, this invention may record the coded data and audio data which carried out time multiplexing not only by this but by for example, an error correction batch and a data compression unit on an optical disk as it is by this data stream that carried out time multiplexing, and may record the coded data from which resolution differs on an optical disk.
[0092] Moreover, although the case where record reproduction was carried out by the optical pickup of 1 was described, you may make it this invention reproduce an audio signal and a video signal in the form of above-mentioned operation, respectively not only by this but by two or more optical pickups.
[0093] Moreover, you may record from the inner circumference side which field blurring etc. is stabilized few when data transfer rate with this invention not only this but sufficient can be secured, although the case where a video signal and an audio signal were recorded cyclically one by one from a periphery side in the form of above-mentioned operation was described, and can reproduce data, and it is a relation with address management, and you may record dispersedly across a fixed field in between.
[0094] Although the case where a system data field was formed in the most inner circumference was furthermore described in the form of above-mentioned operation, this invention can be set as various fields not only this but if needed. Moreover, it can be similarly set as various fields about a system data field.
[0095] this invention may drive an optical disk according to the conditions of a constant angular velocity in the both sides of record reproduction, when sufficient storage capacity which is the case where a magneto-optic disk is applied not only as this but as for example, a disk-like record medium although the case where drove an optical disk according to the conditions of ZCLV in the form of above-mentioned operation, recorded a digital video signal etc., and it reproduced according to the conditions of a constant angular velocity was described can furthermore be secured. Moreover, when desired data can be certainly recorded also with the linear velocity which is different by the inner circumference and periphery side with control of the amount of laser beams even when using a phase-change type optical disk, in the both sides of record reproduction, you may drive an optical disk according to the conditions of a constant angular velocity.
[0096] Moreover, in the form of above-mentioned operation, although the case where carried out the data compression of the digital video signal by MPEG, and it recorded on an optical disk was described, this invention can be widely applied, not only this but when carrying out a data compression by various technique and recording.
[0097] When a magneto-optic disk recordable not only on this but both sides and a write-once type optical disk may be used and sufficient storage capacity is securable, you may make it this invention use only one side furthermore, although the case where a digital video signal and a digital audio signal were recorded on a phase-change type optical disk recordable on both sides in the form of above-mentioned operation was described.
[0098] Moreover, in the form of above-mentioned operation, although the case where the coded data from which resolution differs by the television camera, and the audio data with which tone quality differs were recorded was described, this invention may record the coded data from which an optical disk unit is carried for example, not only in this but in a coverage site, and resolution differs with this optical disk unit, and the audio data with which tone quality differs.

[Translation done.]

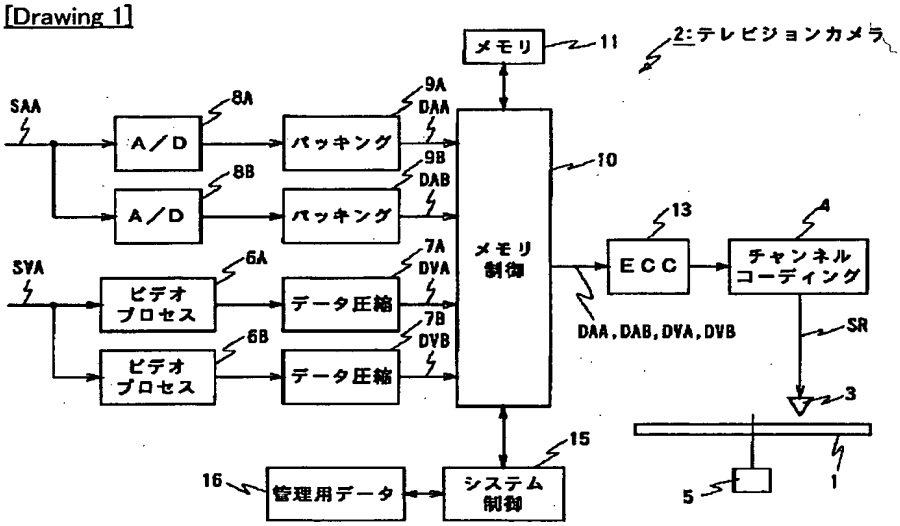
DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is the block diagram showing the television camera concerning the gestalt of operation of the 1st of this invention.
[Drawing 2] It is the plan showing the optical disk applied to the television camera of drawing 1 .
[Drawing 3] It is the block diagram showing the optical disk unit into which the optical disk of drawing 2 is edited.
[Description of Notations]
1 [.. An optical pickup, 7A, 7B / .. 10 A data compression circuit, 27 / .. 11 A memory control circuit, 26 / .. 15 Memory, 23 / .. A system control circuit, 20 / .. An optical disk unit, 28 / .. A data extension circuit, ARS / .. A system data field, ARU / .. User area] .... An optical disk, 2 .. 3 A television camera, 22

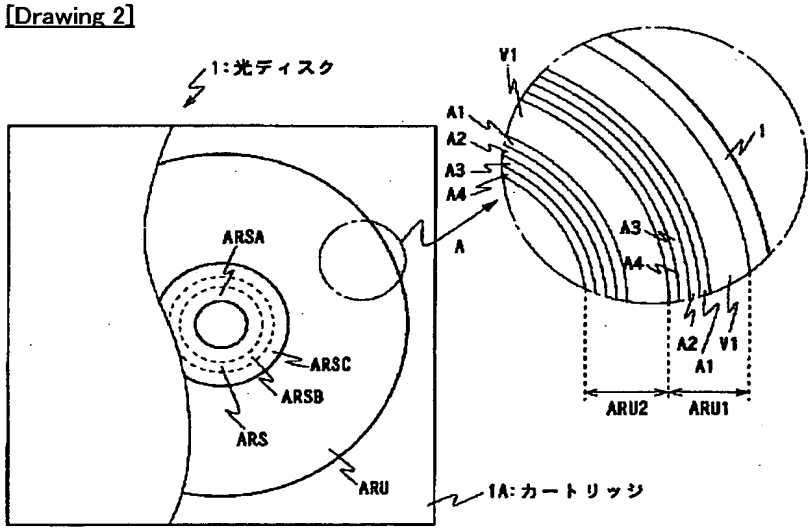
[Translation done.]

DRAWINGS

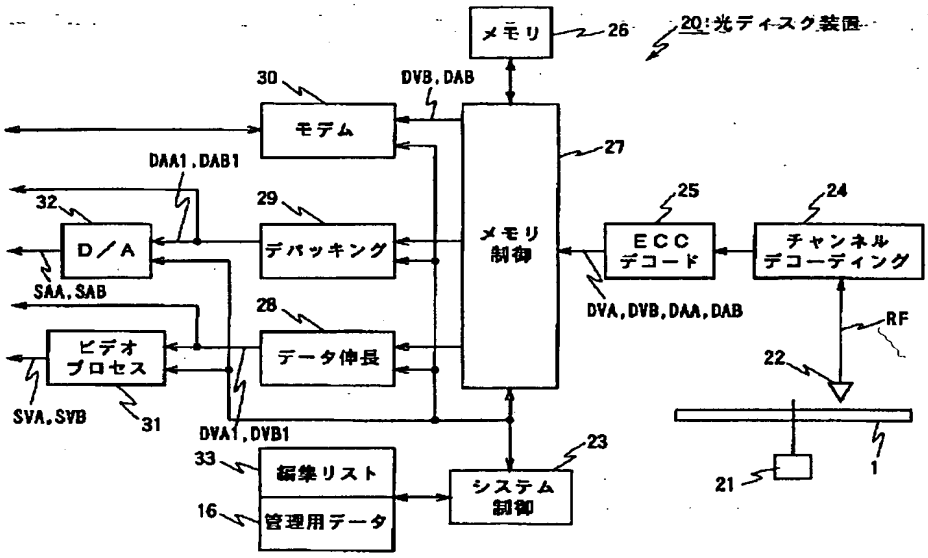
[Drawing 1]



[Drawing 2]



[Drawing 3]



[Translation done.]